

IN THE CLAIMS

**Please amend the claims as follows:**

1. (Currently Amended) A node search method for searching for a new service node for providing a service to a mobile node, in a mobile communication system including a plurality of service nodes and the mobile node, each of the service nodes and the mobile node having a node storage unit configured to store addresses of service nodes, the node search method comprising:

transmitting a node search packet to search for the new service node from a search node, which searches for the new service node, to a search packet reception node having an address stored in the node storage unit of the search node;

transmitting a node notice request packet from the search packet reception node to a peripheral node having an address stored in the node storage unit of the search packet reception node, in response to receiving the node search packet, the address of the peripheral node not being stored in the node storage unit of the search node;

returning a node notice packet from the search packet reception node to the search node, in response to receiving the node search packet;

transmitting the node notice packet from the peripheral node to the search node, ~~in response to~~ based only on a determination that the node notice request packet has been received by the peripheral node;

detecting the new service node based on the returned node notice packet from the peripheral node, by the search node;

updating the node storage unit of the search node based on the new service node detected by the search node; and

transmitting data for investigating node information from the search node to the detected new service node, the data for investigating node information including a request for

a delay value and a number of hops in a packet transmission between the search node and the detected new service node.

2. (Currently Amended) A node, comprising:

a node storage unit configured to store addresses of service nodes for providing a service to a mobile node;

a search packet creation unit configured to create a node search packet to search for a new service node;

a communication unit configured to transmit the node search packet to a search packet reception node having an address stored in the node storage unit, to receive a node notice packet transmitted from the search packet reception node in response to receiving the node search packet, and to receive the node notice packet from a peripheral node which receives a node notice request packet from the search packet reception node, an address of the peripheral node not being stored in the node storage unit and the peripheral node being configured to transmit the node notice packet to the node based only on a determination that the node notice request packet has been received by the peripheral node;

a detection unit configured to detect the new service node based on the node notice packet returned from the peripheral node; and

an update unit configured to update the node storage unit based on the new service node detected by the detection unit,

wherein the communication unit is configured to transmit, to the detected new service node, data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected new service node.

3. (Previously Presented) The node of claim 2, further comprising:

a data creation unit configured to create the data for investigating node information detected by the detection unit, the data being transmitted to the detected new service node, wherein

the node storage unit is configured to store the node information,

the communication unit is configured to transmit the data created by the data creation unit, and to receive response data returned in response to the data by the detected new service node, and

the update unit is configured to update the node storage unit based on the returned response data.

4. (Previously Presented) The node of claim 2, wherein

node information concerning the new service node is included in the node notice packet,

the node storage unit is configured to store the node information, and

the update unit is configured to update the node storage unit based on the returned node notice packet.

5. (Previously Presented) The node of claim 3, wherein the node storage unit is configured to store the addresses of the service nodes and the node information according to a predetermined criterion.

6. (Previously Presented) The node of claim 4, further comprising:

a determination unit configured to determine inter-node information between the search node and the peripheral node according to inter-node information between the search

node and the search packet reception node and inter-node information between the search packet reception node and the peripheral node based on the node notice packet, wherein

the update unit is configured to update the node storage unit based on the inter-node information between the search node and the peripheral node determined by the determination unit.

7. (Previously Presented) The node of claim 2, further comprising:

a notice packet creation unit configured to create the node notice packet by accessing the node storage unit, wherein

the communication unit is configured to transmit the node notice packet created by the notice packet creation unit.

8. (Previously Presented) The node of claim 7, wherein the notice packet creation unit is configured to create the node notice packet that is passed through the peripheral node.

9. (Previously Presented) The node of claim 7, wherein the notice packet creation unit is configured to create the node notice packet when the communication unit has received at least one of the node search packet, the node notice packet, and the node notice request packet for requesting return of the node notice packet.

10. (Previously Presented) The node of claim 2, further comprising:

a request packet creation unit configured to create the node notice request packet for requesting the peripheral node to return the node notice packet, wherein

the communication unit is configured to transmit the node notice request packet created by the request packet creation unit.

11. (Previously Presented) The node of claim 10, wherein the request packet creation unit is configured to create the node notice request packet when the communication unit has received at least one of the node search packet, the node notice packet, and the node notice request packet.

12. (Previously Presented) The node of claim 2, further comprising:  
a request packet creation unit configured to create a node registration request packet for requesting registration in the node storage unit of another service node, wherein  
the communication unit is configured transmit the node registration request packet created by the request packet creation unit.

13. (Previously Presented) The node of claim 2, wherein  
the communication unit is configured to receive a node registration request packet for requesting registration in the node storage unit of another service node, and  
the update unit is configured to update the node storage unit based on the node registration request packet.

14. (Previously Presented) The node of claim 2, further comprising:  
a selection criterion holding unit configured to hold a selection criterion for selecting a service node to be used; and  
a selection unit configured to access the node storage unit and to select the service node to be used, based on the selection criterion held in the selection criterion holding unit.

15. (Currently Amended) A mobile communication system, comprising:

a search node configured to search for a new service node for providing a service to a mobile node by transmitting a node search packet in order to search for the new service node;

a search packet reception node configured to receive the node search packet transmitted from the search node; and

a peripheral node other than the search packet reception node,  
wherein the search node includes

a node storage unit configured to store addresses of service nodes;

a search packet creation unit configured to create the node search packet to search for the new service node;

a communication unit configured to transmit the node search packet to the search packet reception node having an address stored in the node storage unit, to receive a node notice packet transmitted from the search packet reception node in response to receiving the node search packet, and to receive the node notice packet from a peripheral node which receives a node notice request packet from the search packet reception node, an address of the peripheral node not being stored in the node storage unit and the peripheral node being configured to transmit the node notice packet to the search node based only on a determination that the node notice request packet has been received by the peripheral node;

a detection unit configured to detect the new service node based on the node notice packet returned from the peripheral node; and

an update unit configured to update the node storage unit based on the new service node detected by the detection unit,

wherein the communication unit is configured to transmit, to the detected new service node, data for investigating node information including a request for a delay

value and a number of hops in a packet transmission between the search node and the detected new service node.

16. (Currently Amended) A computer-readable storage medium, including computer executable instructions, wherein the instructions, when executed by a processor, cause the processor to function as a node and to perform a method, comprising:

storing addresses of service nodes for providing a service to a mobile node;

creating a node search packet to search for a new service node;

transmitting the node search packet to a search packet reception node having an address stored in the storing;

receiving a node notice packet transmitted from the search packet reception node in response to receiving the node search packet; receiving the node notice packet from a peripheral node which receives a node notice request packet from the search packet reception node, an address of the peripheral node not being stored in the node storage unit and the peripheral node being configured to transmit the node notice packet to the node based only on a determination that the node notice request packet has been received by the peripheral node;

detecting the new service node based on the node notice packet returned from the peripheral node;

updating the addresses based on the detected new service node; and

transmitting to the detected new service node, by the search node, data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected new service node.

17. (Previously Presented) The node search method of claim 1, wherein the updating step comprises updating the node storage unit to include an address of the new service node.

18. (Previously Presented) The node of claim 2, wherein the update unit is configured to update the node storage unit to include an address of the new service node.

19. (Previously Presented) The mobile communication system of claim 15, wherein the update unit is configured to update the node storage unit to include an address of the new service node.

20. (Currently Amended) The ~~method~~ computer-readable storage medium of claim 16, wherein the updating step comprises updating the addresses to include an address of the new service node.

21. (New) The node search method of claim 1, wherein the transmitting step comprises transmitting the node notice packet from the peripheral node directly to the search node.

22. (New) The node of claim 2, wherein the communication unit is configured to receive the node notice packet directly from the peripheral node.

23. (New) The mobile communication system of claim 15, wherein the communication unit is configured to receive the node notice packet directly from the peripheral node.

24. (New) The computer-readable storage medium of claim 16, wherein the receiving step comprises receiving the node notice packet directly from the peripheral node.